



SEQUENCE LISTING

<110> Yan, Riqiang
Tomasselli, Alfredo G.
Gurney, Mark E.
Emmons, Thomas L.
Bienkowski, Mike J.
Heinrikson, Robert L.

<120> SUBSTRATES AND ASSAYS FOR BETA-SECRETASE ACTIVITY

<130> 29915/00281FUS

<140> 10/801,487

<141> 2004-03-16

<150> 09/908,943

<151> 2001-07-19

<150> 60/219,795

<151> 2000-07-19

<160> 199

<170> PatentIn Ver. 2.0

<210> 1

<211> 2070

<212> DNA

<213> Homo sapiens

<400> 1

| | | | | | | |
|-------------|------------|------------|-------------|------------|------------|------|
| atggcccaag | ccctgccctg | gctcctgctg | tggatgggag | cgaggagtgt | gcctgcccac | 60 |
| ggcaccacag | acggcatccg | gctgcccctg | cgcagcggcc | tggggggcgc | ccccctgggg | 120 |
| ctgaggctgc | cccgaggagc | cgacgaagag | cccaggaggc | ccggccggag | gggcagcttt | 180 |
| gtggagatgg | tggacaacct | gaggggcaag | tcggggcagg | gctactacgt | ggagatgacc | 240 |
| gtgggcagcc | ccccgcagac | gctcaacatc | ctgggtggata | caggcagcag | taactttgca | 300 |
| gtgggtgctg | ccccccaccc | cttcctgcat | cgctactacc | agaggcagct | gtccagcaca | 360 |
| taccgggacc | tccggaagg | tgtgtatgtg | ccctacaccc | agggcaagt | ggaaggggag | 420 |
| ctgggcaccg | acctggtaag | catcccccat | ggccccaaag | tactgtgctg | tgccaacatt | 480 |
| gctgccatca | ctgaatcaga | caagttcttc | atcaacggct | ccaactggga | aggcatcctg | 540 |
| gggctggcct | atgctgagat | tgccaggcct | gacgactccc | tggagccttt | ctttgactct | 600 |
| ctggtaaagc | agaccacagt | tcccaacctc | ttctccctgc | acctttgtgg | tgctggcttc | 660 |
| cccctcaacc | agtctgaagt | gctggcctct | gtcggaggga | gcatgatcat | tggaggtatc | 720 |
| gaccactcgc | tgtacacagg | cagtctctgg | tatacaccca | tccggcggga | gtggtattat | 780 |
| gaggtcatca | ttgtgcgggt | ggagatcaat | ggacaggatc | tgaaaatgga | ctgcaaggag | 840 |
| tacaactatg | acaagagcat | tgtggacagt | ggcaccacca | accttcgttt | gccaagaaa | 900 |
| gtgtttgaag | atgcagtcaa | atccatcaag | gcagcctcct | ccacggagaa | gttccctgat | 960 |
| ggttttctgg | taggagagca | gctgggtgtg | tggcaagcag | gcaccacccc | ttggaacatt | 1020 |
| ttcccagtc | tctcactcta | cctaattggg | gaggttacca | accagtcctt | ccgcatcacc | 1080 |
| atccttccgc | agcaatacct | gcgccagtg | gaagatgtgg | ccacgtccca | agacgactgt | 1140 |
| tacaagtttg | ccatctcaca | gtcatccacg | ggcactgtta | tgggagctgt | tatcatggag | 1200 |
| ggcttctacg | ttgtctttga | tccggcccga | aaacgaattg | gctttgctgt | cagcgcttgc | 1260 |
| catgtgcacg | atgagttcag | gacggcagcg | gtggaaggcc | cttttgtcac | cttggacatg | 1320 |
| gaagactgtg | gctacaacat | tccacagaca | gatgagtcaa | ccctcatgac | catagcctat | 1380 |
| gtcatggctg | ccatctgcgc | cctcttcatg | ctgccactct | gcctcatggg | gtgtcagttg | 1440 |
| cgctgcctcc | gctgcctgcg | ccagcagcat | gatgactttg | ctgatgacat | ctccctgctg | 1500 |
| aagtgaggag | gcccattggg | agaagataga | gattccccct | gaccacacct | ccgtgggttc | 1560 |
| cttttggtcac | aagtaggaga | cacagatggc | acctgtggcc | agagcacctc | aggaccttcc | 1620 |
| ccaccaccca | aatgcctctg | ccttgatgga | gaaggaaaag | gctggcaagg | tgggttccag | 1680 |
| ggactgtacc | tgtaggaaac | agaaaagaga | agaaagaagc | actctgctgg | cggaataact | 1740 |
| cttggtcacc | tcaaatatta | gtcgggaaat | tctgctgctt | gaaacttcag | ccctgaacct | 1800 |

```

ttgtccacca ttccttttaaa ttctccaacc caaagtattc ttctttttctt agtttcagaa 1860
gtactggcat cacacgcagg ttaccttggc gtgtgtccct gtgggtaccct ggcagagaag 1920
agaccaagct tggtttccctg ctggccaaag tcagtaggag aggatgcaca gtttgctatt 1980
tgcttttagag acaggggactg tataaacaag cctaacattg gtgcaaagat tgcctcttga 2040
ataaaaaaaaa aaaaaaaaaa aaaaaaaaaa                2070

```

<210> 2
 <211> 501
 <212> PRT
 <213> Homo sapiens

```

<400> 2
Met Ala Gln Ala Leu Pro Trp Leu Leu Leu Trp Met Gly Ala Gly Val
 1          5          10          15
Leu Pro Ala His Gly Thr Gln His Gly Ile Arg Leu Pro Leu Arg Ser
          20          25          30
Gly Leu Gly Gly Ala Pro Leu Gly Leu Arg Leu Pro Arg Glu Thr Asp
          35          40          45
Glu Glu Pro Glu Glu Pro Gly Arg Arg Gly Ser Phe Val Glu Met Val
          50          55          60
Asp Asn Leu Arg Gly Lys Ser Gly Gln Gly Tyr Tyr Val Glu Met Thr
          65          70          75          80
Val Gly Ser Pro Pro Gln Thr Leu Asn Ile Leu Val Asp Thr Gly Ser
          85          90          95
Ser Asn Phe Ala Val Gly Ala Ala Pro His Pro Phe Leu His Arg Tyr
          100          105          110
Tyr Gln Arg Gln Leu Ser Ser Thr Tyr Arg Asp Leu Arg Lys Gly Val
          115          120          125
Tyr Val Pro Tyr Thr Gln Gly Lys Trp Glu Gly Glu Leu Gly Thr Asp
          130          135          140
Leu Val Ser Ile Pro His Gly Pro Asn Val Thr Val Arg Ala Asn Ile
          145          150          155          160
Ala Ala Ile Thr Glu Ser Asp Lys Phe Phe Ile Asn Gly Ser Asn Trp
          165          170          175
Glu Gly Ile Leu Gly Leu Ala Tyr Ala Glu Ile Ala Arg Pro Asp Asp
          180          185          190
Ser Leu Glu Pro Phe Phe Asp Ser Leu Val Lys Gln Thr His Val Pro
          195          200          205
Asn Leu Phe Ser Leu His Leu Cys Gly Ala Gly Phe Pro Leu Asn Gln
          210          215          220
Ser Glu Val Leu Ala Ser Val Gly Gly Ser Met Ile Ile Gly Gly Ile
          225          230          235          240
Asp His Ser Leu Tyr Thr Gly Ser Leu Trp Tyr Thr Pro Ile Arg Arg
          245          250          255
Glu Trp Tyr Tyr Glu Val Ile Ile Val Arg Val Glu Ile Asn Gly Gln
          260          265          270

```

Asp Leu Lys Met Asp Cys Lys Glu Tyr Asn Tyr Asp Lys Ser Ile Val
 275 280 285
 Asp Ser Gly Thr Thr Asn Leu Arg Leu Pro Lys Lys Val Phe Glu Ala
 290 295 300
 Ala Val Lys Ser Ile Lys Ala Ala Ser Ser Thr Glu Lys Phe Pro Asp
 305 310 315 320
 Gly Phe Trp Leu Gly Glu Gln Leu Val Cys Trp Gln Ala Gly Thr Thr
 325 330 335
 Pro Trp Asn Ile Phe Pro Val Ile Ser Leu Tyr Leu Met Gly Glu Val
 340 345 350
 Thr Asn Gln Ser Phe Arg Ile Thr Ile Leu Pro Gln Gln Tyr Leu Arg
 355 360 365
 Pro Val Glu Asp Val Ala Thr Ser Gln Asp Asp Cys Tyr Lys Phe Ala
 370 375 380
 Ile Ser Gln Ser Ser Thr Gly Thr Val Met Gly Ala Val Ile Met Glu
 385 390 395 400
 Gly Phe Tyr Val Val Phe Asp Arg Ala Arg Lys Arg Ile Gly Phe Ala
 405 410 415
 Val Ser Ala Cys His Val His Asp Glu Phe Arg Thr Ala Ala Val Glu
 420 425 430
 Gly Pro Phe Val Thr Leu Asp Met Glu Asp Cys Gly Tyr Asn Ile Pro
 435 440 445
 Gln Thr Asp Glu Ser Thr Leu Met Thr Ile Ala Tyr Val Met Ala Ala
 450 455 460
 Ile Cys Ala Leu Phe Met Leu Pro Leu Cys Leu Met Val Cys Gln Trp
 465 470 475 480
 Arg Cys Leu Arg Cys Leu Arg Gln Gln His Asp Asp Phe Ala Asp Asp
 485 490 495
 Ile Ser Leu Leu Lys
 500

<210> 3

<211> 1977

<212> DNA

<213> Homo sapiens

<400> 3

atggcccaag ccctgccctg gctcctgctg tggatgggag cgaggagtgt gcctgcccac 60
 ggcacccagc acggcatccg gctgcccctg cgcagcggcc tggggggcgc cccctgggg 120
 ctgaggctgc cccgggagac cgacgaagag cccgaggagc ccggccggag gggcagcttt 180
 gtggagatgg tggacaacct gaggggcaag tcggggcagg gctactacgt ggagatgacc 240
 gtgggcagcc cccgcgagac gctcaacatc ctggtggata caggcagcag taactttgca 300
 gtgggtgctg cccccacccc cttcctgcat cgctactacc agaggcagct gtccagcaca 360
 taccgggacc tccggaagggt tgtgtatgtg ccctacaccc agggcaagtg ggaaggggag 420
 ctgggcaccg acctggttaag catcccccat ggccccaacg tcaactgtgc tgccaacatt 480
 gctgccatca ctgaatcaga caagttcttc atcaacggct ccaactggga aggcacacct 540
 gggctggcct atgctgagat tgccaggctt tgtggtgctg gcttccccct caaccagtct 600
 gaagtgtctg cctctgtcgg agggagcatg atcattggag gtatcgacca ctgcgtgtac 660

```

acaggcagtc tctggtatac acccatccgg cgggagtggt attatgaggt gatcattgtg 720
cgggtggaga tcaatggaca ggatctgaaa atggactgca aggagtacaa ctatgacaag 780
agcattgtgg acagtggcac caccaacctt cgtttgccca agaaagtgtt tgaagctgca 840
gtcaaatacca tcaaggcagc ctctccacg gagaagttcc ctgatggttt ctggctagga 900
gagcagctgg tgtgctggca agcaggcacc accccttgga acattttccc agtcatctca 960
ctctacctaa tgggtgaggt taccaaccag tccttccgca tcaaccatcct tccgcagcaa 1020
tacctgcggc cagtgggaaga tgtggccacg tcccaagacg actgttacaa gtttgccatc 1080
tcacagtcac ccacgggcac tgttatggga gctgttatca tggagggcct ctacgttgtc 1140
tttgatcggg cccgaaaacg aattggcttt gctgtcagcg cttgccatgt gcacgatgag 1200
ttcaggacgg cagcgggtgga aggccctttt gtcaccttg acatggaaga ctgtggctac 1260
aacattccac agacagatga gtcaaccctc atgaccatag cctatgtcat ggctgccatc 1320
tgcccccctc tcatgctgcc actctgcctc atgggtgtgc agtggcgctg cctccgctgc 1380
ctgcgccagc agcatgatga ctttgctgat gacatctccc tgctgaagtg aggaggccca 1440
tgggcagaag atagagattc ccctggacca cacctccgtg gttcactttg gtcacaagta 1500
ggagacacag atggcacctg tggccagagc acctcaggac cctccccacc caccaaatgc 1560
ctctgccttg atggagaagg aaaaggctgg caaggtgggt tccagggact gtacctgtag 1620
gaaacagaaa agagaagaaa gaagcactct gctggcggga atactcttg tcacctcaaa 1680
tttaagtggg gaaattctgc tgcttgaaac ttcagccctg aacctttgtc caccattcct 1740
ttaaattctc caacccaag tattcttctt ttcttagttt cagaagtact ggcatcacac 1800
gcaggttacc ttggcgtgtg tccctgtggt accctggcag agaagagacc aagcttgttt 1860
ccctgctggc caaagtcagt aggagaggat gcacagtttg ctatttgctt tagagacagg 1920
gactgtataa acaagcctaa cattggtgca aagattgcct cttgaaaaaa aaaaaaa 1977

```

<210> 4

<211> 476

<212> PRT

<213> Homo sapiens

<400> 4

```

Met Ala Gln Ala Leu Pro Trp Leu Leu Leu Trp Met Gly Ala Gly Val
 1              5              10              15
Leu Pro Ala His Gly Thr Gln His Gly Ile Arg Leu Pro Leu Arg Ser
              20              25              30
Gly Leu Gly Gly Ala Pro Leu Gly Leu Arg Leu Pro Arg Glu Thr Asp
              35              40              45
Glu Glu Pro Glu Glu Pro Gly Arg Arg Gly Ser Phe Val Glu Met Val
              50              55              60
Asp Asn Leu Arg Gly Lys Ser Gly Gln Gly Tyr Tyr Val Glu Met Thr
              65              70              75              80
Val Gly Ser Pro Pro Gln Thr Leu Asn Ile Leu Val Asp Thr Gly Ser
              85              90              95
Ser Asn Phe Ala Val Gly Ala Ala Pro His Pro Phe Leu His Arg Tyr
              100              105              110
Tyr Gln Arg Gln Leu Ser Ser Thr Tyr Arg Asp Leu Arg Lys Gly Val
              115              120              125
Tyr Val Pro Tyr Thr Gln Gly Lys Trp Glu Gly Glu Leu Gly Thr Asp
              130              135              140
Leu Val Ser Ile Pro His Gly Pro Asn Val Thr Val Arg Ala Asn Ile
              145              150              155              160
Ala Ala Ile Thr Glu Ser Asp Lys Phe Phe Ile Asn Gly Ser Asn Trp
              165              170              175
Glu Gly Ile Leu Gly Leu Ala Tyr Ala Glu Ile Ala Arg Leu Cys Gly

```


<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 5
Lys Val Glu Ala Asn Tyr Glu Val Glu Gly Glu Arg Lys Lys
1 5 10

<210> 6
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 6
Lys Val Glu Ala Asn Tyr Glu Val Glu Gly Glu Arg Cys Lys Lys
1 5 10 15

<210> 7
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 7
Lys Val Glu Ala Asn Tyr Ala Val Glu Gly Glu Arg Lys Lys
1 5 10

<210> 8
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 8
Lys Val Glu Ala Asn Tyr Ala Val Glu Gly Glu Arg Cys Lys Lys
1 5 10 15

<210> 9
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 9
Glu Ala Asn Tyr Glu Val Glu Phe
1 5

<210> 10
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 10
Gly Val Leu Leu Ala Ala Gly Trp
1 5

<210> 11
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 11
Ile Ile Lys Met Asp Asn Phe Gly
1 5

<210> 12
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 12
Asp Ser Ser Asn Leu Glu Met Thr His Ala
1 5 10

<210> 13
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (7)
<223> Xaa=cysteic acid

<400> 13
Thr His Gly Phe Gln Leu Xaa His
1 5

<210> 14

<211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 14
 Cys Tyr Thr His Ser Phe Ser Pro
 1 5

 <210> 15
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (4)
 <223> Xaa= any amino acid

 <220>
 <221> SITE
 <222> (7)
 <223> Xaa= any amino acid

 <400> 15
 Ser Thr Phe Xaa Gly Ser Xaa Gly
 1 5

 <210> 16
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (1)
 <223> Xaa= any amino acid

 <220>
 <221> SITE
 <222> (4)..(7)
 <223> Xaa= any amino acid

 <400> 16
 Xaa Phe Ala Xaa Xaa Xaa Xaa Asn
 1 5

 <210> 17
 <211> 8

<212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (1)..(2)
 <223> Xaa=any amino acid

 <220>
 <221> SITE
 <222> (4)..(7)
 <223> Xaa= any amino acid

 <400> 17
 Xaa Xaa Gln Xaa Xaa Xaa Xaa Ser
 1 5

 <210> 18
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (1)..(2)
 <223> Xaa= any amino acid

 <220>
 <221> SITE
 <222> (4)..(7)
 <223> Xaa= any amino acid

 <400> 18
 Xaa Xaa Glu Xaa Xaa Xaa Xaa Glu
 1 5

 <210> 19
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 19
 Ser Glu Val Asn Leu Asp Ala Glu Phe Arg
 1 5 10

 <210> 20
 <211> 10
 <212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<400> 20

Ser Glu Val Lys Met Asp Ala Glu Phe Arg
1 5 10

<210> 21

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> MOD_RES

<222> (5)

<223> Nle

<400> 21

Ser Glu Val Asn Xaa Asp Ala Glu Phe Arg
1 5 10

<210> 22

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<400> 22

Gly Ser Glu Ser Met Asp Ser Gly Ile Ser Leu Asp Asn Lys Trp
1 5 10 15

<210> 23

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<400> 23

Trp Lys Lys Gly Ala Ile Ile Gly Leu Met Val Gly Gly Val Val Lys
1 5 10 15

Lys

<210> 24

<211> 11

<212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 24
 Ala Asn Leu Ser Thr Phe Ala Gln Pro Arg Arg
 1 5 10

 <210> 25
 <211> 20
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 25
 Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys Leu Val
 1 5 10 15

 Phe Phe Ala Glu
 20

 <210> 26
 <211> 16
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 26
 Leu Thr Gly Lys Thr Ile Thr Leu Glu Val Glu Pro Ser Asp Thr Ile
 1 5 10 15

 <210> 27
 <211> 30
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (7)
 <223> Xaa= cysteic acid

 <220>
 <221> SITE
 <222> (19)
 <223> Xaa = cysteic acid

 <400> 27

Phe Val Asn Gln His Leu Xaa Gly Ser His Leu Val Glu Ala Leu Tyr
1 5 10 15

Leu Val Xaa Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Ala
20 25 30

<210> 28
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic

<220>
<221> SITE
<222> (6)
<223> Xaa=cysteic acid

<220>
<221> SITE
<222> (7)
<223> Xaa=cysteic acid

<220>
<221> SITE
<222> (11)
<223> Xaa=cysteic acid

<220>
<221> SITE
<222> (20)
<223> Xaa=cysteic acid

<400> 28
Gly Ile Val Glu Gln Xaa Xaa Ala Ser Val Xaa Ser Leu Tyr Gln Leu
1 5 10 15

Glu Asn Tyr Xaa Asn
20

<210> 29
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 29
Tyr Arg Tyr Gln Ser His Asp Tyr Ala Phe Ser Ser Val Glu Lys Leu
1 5 10 15

Leu His Ala Leu Gly Gly Cys
20

<210> 30
<211> 23

<212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 30
 Tyr Arg Tyr Gln Ser His Asp Tyr Ala Phe Ser Ser Val Glu Lys Leu
 1 5 10 15

 Leu His Ala Leu Gly Gly Cys
 20

<210> 31
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

<400> 31
 Leu Val Asn Met Ala Glu Gly Asp
 1 5

<210> 32
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

<400> 32
 Arg Gly Ser Met Ala Gly Val Leu
 1 5

<210> 33
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

<400> 33
 Gly Thr Gln His Gly Ile Arg Leu
 1 5

<210> 34
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 34
Ser Ser Asn Phe Ala Val Gly Ala
1 5

<210> 35
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 35
Gly Leu Ala Tyr Ala Glu Ile Ala
1 5

<210> 36
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 36
His Leu Cys Gly Ser His Leu Val
1 5

<210> 37
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 37
Cys Gly Glu Arg Gly Phe Phe Tyr
1 5

<210> 38
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 38
Gly Val Leu Leu Ser Arg Lys
1 5

<210> 39
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 39
Val Gly Ser Gly Val Leu Leu
1 5

<210> 40
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 40
Val Gly Ser Gly Val
1 5

<210> 41
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (9)
<223> Xaa= cysteic acid

<400> 41
Lys Val Glu Ala Leu Tyr Leu Val Xaa Gly Glu Arg
1 5 10

<210> 42
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 42
Trp Arg Arg Val Glu Ala Leu Tyr Leu Val Glu Gly Glu Arg Lys
1 5 10 15

<210> 43
<211> 14

<212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 43
 Lys Val Glu Ala Asn Tyr Leu Val Glu Gly Glu Arg Lys Lys
 1 5 10

 <210> 44
 <211> 4
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 44
 Met Leu Leu Leu
 1

 <210> 45
 <211> 6
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 45
 Asp Ala Ala His Pro Gly
 1 5

 <210> 46
 <211> 14
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 46
 Lys Val Glu Ala Asn Tyr Asp Val Glu Gly Glu Arg Lys Lys
 1 5 10

 <210> 47
 <211> 14
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

<400> 47
Lys Val Glu Ala Asn Leu Ala Val Glu Gly Glu Arg Lys Lys
1 5 10

<210> 48
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 48
Lys Val Glu Ala Leu Tyr Ala Val Glu Gly Glu Arg Lys Lys
1 5 10

<210> 49
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa = E, G, I, D, T, cysteic acid or S

<400> 49
Xaa Ala Asn Tyr Glu Val Glu Phe
1 5

<210> 50
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (2)
<223> Xaa= A, V, I, S, H, Y, T or F

<400> 50
Glu Xaa Asn Tyr Glu Val Glu Phe
1 5

<210> 51
<211> 8
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (3)

<223> Xaa= N, L, K, S, G, T, D, A, Q, or E

<400> 51

Glu Ala Xaa Tyr Glu Val Glu Phe

1

5

<210> 52

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (4)

<223> Xaa= Y, L, M, Nle, F or H

<400> 52

Glu Ala Asn Xaa Glu Val Glu Phe

1

5

<210> 53

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (5)

<223> Xaa= E, A, D, M, Q, S or G

<400> 53

Glu Ala Asn Tyr Xaa Val Glu Phe

1

5

<210> 54

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (6)

<223> Xaa= V, A, N, T, L, F or S

<400> 54

Glu Ala Asn Tyr Glu Xaa Glu Phe
1 5

<210> 55

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>

<221> SITE

<222> (7)

<223> Xaa= E, G, F, H, cysteic acid or S

<400> 55

Glu Ala Asn Tyr Glu Val Xaa Phe
1 5

<210> 56

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>

<221> SITE

<222> (8)

<223> Xaa= F, W, G, A, H, P, G, N, S or E

<400> 56

Glu Ala Asn Tyr Glu Val Glu Xaa
1 5

<210> 57

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>

<221> SITE

<222> (1)

<223> Xaa= E, G, I, D, T, cyeteic acid or S

<400> 57

Xaa Val Leu Leu Ala Ala Gly Trp
1 5

<210> 58
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (2)
 <223> Xaa= A, V, I, S, H, Y, T or F

 <400> 58
 Gly Xaa Leu Leu Ala Ala Gly Trp
 1 5

 <210> 59
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (3)
 <223> Xaa= N, L, K, S, G, T, D, A, Q or E

 <400> 59
 Gly Val Xaa Leu Ala Ala Gly Trp
 1 5

 <210> 60
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (4)
 <223> Xaa= Y, L, M, Nle, F or H

 <400> 60
 Gly Val Leu Xaa Ala Ala Gly Trp
 1 5

 <210> 61
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (5)

<223> Xaa= E, A, D, M, Q, S or G

<400> 61

Gly Val Leu Leu Xaa Ala Gly Trp

1

5

<210> 62

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (6)

<223> Xaa= V, A, N, T, L, F or S

<400> 62

Gly Val Leu Leu Ala Xaa Gly Trp

1

5

<210> 63

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (7)

<223> Xaa= E, G, F, H, cysteic acid or S

<400> 63

Gly Val Leu Leu Ala Ala Xaa Trp

1

5

<210> 64

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (8)

<223> Xaa= F, W, G, A, H, P, G, N or S

<400> 64

Gly Val Leu Leu Ala Ala Gly Xaa
1 5

<210> 65

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>

<221> SITE

<222> (1)

<223> Xaa= E, G, I, D, T, cysteic acid or S

<400> 65

Xaa Ile Lys Met Asp Asn Phe Gly
1 5

<210> 66

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>

<221> SITE

<222> (2)

<223> Xaa= A, V, I, S, H, Y, T or F

<400> 66

Ile Xaa Lys Met Asp Asn Phe Gly
1 5

<210> 67

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>

<221> SITE

<222> (3)

<223> Xaa= N, L, K, S, G, T, D, A, Q or E

<400> 67

Ile Ile Xaa Met Asp Asn Phe Gly
1 5

<210> 68
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (4)
 <223> Xaa= Y, L, M, Nle, F or H

 <400> 68
 Ile Ile Lys Xaa Asp Asn Phe Gly
 1 5

 <210> 69
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (5)
 <223> Xaa= E, A, D, M, Q, S or G

 <400> 69
 Ile Ile Lys Met Xaa Asn Phe Gly
 1 5

 <210> 70
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (6)
 <223> Xaa= V, A, N,T, L, F or S

 <400> 70
 Ile Ile Lys Met Asp Xaa Phe Gly
 1 5

 <210> 71
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (7)
<223> Xaa= E, G, F, H, cysteic acid or S

<400> 71
Ile Ile Lys Met Asp Asn Xaa Gly
1 5

<210> 72
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (8)
<223> Xaa= F, W, G, A, H, P, G, N or S

<400> 72
Ile Ile Lys Met Asp Asn Phe Xaa
1 5

<210> 73
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= E, G, I, D, T, cysteic acid or S

<400> 73
Xaa Ser Ser Asn Leu Glu Met Thr His Ala
1 5 10

<210> 74
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE

<222> (2)
 <223> Xaa= A, V, I, S, H, Y, T or F

 <400> 74
 Asp Xaa Ser Asn Leu Glu Met Thr His Ala
 1 5 10

 <210> 75
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (3)
 <223> Xaa= N, L, K, S, G, T, D, A, Q or E

 <400> 75
 Asp Ser Xaa Asn Leu Glu Met Thr His Ala
 1 5 10

 <210> 76
 <211> 8
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (4)
 <223> Xaa= Y, L, M, Nle, F or H

 <400> 76
 Asp Ser Ser Xaa Met Thr His Ala
 1 5

 <210> 77
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <220>
 <221> SITE
 <222> (7)
 <223> Xaa= E, A, D, M, Q, S or G

 <400> 77
 Asp Ser Ser Asn Leu Glu Xaa Thr His Ala
 1 5 10

<210> 78
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (8)
<223> Xaa= V, A, N, T, L, F or S

<400> 78
Asp Ser Ser Asn Leu Glu Met Xaa His Ala
1 5 10

<210> 79
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (8)
<223> Xaa= E, G, F, H, cysteic acid or S

<400> 79
Asp Ser Asn Leu Glu Met Thr Xaa Ala
1 5

<210> 80
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (9)
<223> Xaa= F, W, G, A, H, P, G, N or S

<400> 80
Asp Ser Asn Leu Glu Met Thr His Xaa
1 5

<210> 81
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= E, G, I, D, T, cysteic acid or S

<220>
<221> SITE
<222> (7)
<223> Xaa= cysteic acid

<400> 81
Xaa His Gly Phe Gln Leu Xaa His
1 5

<210> 82
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (2)
<223> Xaa= A, V, I, S, H, Y, T or F

<220>
<221> SITE
<222> (7)
<223> Xaa= cysteic acid

<400> 82
Thr Xaa Gly Phe Gln Leu Xaa His
1 5

<210> 83
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (3)
<223> Xaa= N, L, K, S, G, T, D, A, Q or E

<220>
<221> SITE
<222> (7)
<223> Xaa= cysteic acid

<400> 83

Thr His Xaa Phe Gln Leu Xaa His
1 5

<210> 84
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (4)
<223> Xaa= Y, L, M, Nle, F or H

<220>
<221> SITE
<222> (7)
<223> Xaa= cysteic acid

<400> 84
Thr His Gly Xaa Gln Leu Xaa His
1 5

<210> 85
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (5)
<223> Xaa= E, A, D, M, Q, S or G

<220>
<221> SITE
<222> (7)
<223> Xaa= cysteic acid

<400> 85
Thr His Gly Phe Xaa Leu Xaa His
1 5

<210> 86
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE

<222> (6)
<223> Xaa= V, A, N, T, L, F or S

<220>
<221> SITE
<222> (7)
<223> Xaa= cysteic acid

<400> 86
Thr His Gly Phe Gln Xaa Xaa His
1 5

<210> 87
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (7)
<223> Xaa= E, G, F, H, cysteic acid or S

<400> 87
Thr His Gly Phe Gln Leu Xaa His
1 5

<210> 88
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (7)
<223> Xaa= cysteic acid

<220>
<221> SITE
<222> (8)
<223> Xaa= F, W, G, A, H, P, G, N or S

<400> 88
Thr His Gly Phe Gln Leu Xaa Xaa
1 5

<210> 89
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic

peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= E, G, I, D, T, cysteic acid or S

<400> 89
Xaa Tyr Thr His Ser Phe Ser Pro
1 5

<210> 90
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= cysteic acid

<220>
<221> SITE
<222> (2)
<223> Xaa= A, V, I, S, H, Y, T or F

<400> 90
Xaa Xaa Thr His Ser Phe Ser Pro
1 5

<210> 91
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= cysteic acid

<220>
<221> SITE
<222> (3)
<223> Xaa= N, L, K, S, G, T, D, A, Q or E

<400> 91
Xaa Tyr Xaa His Ser Phe Ser Pro
1 5

<210> 92
<211> 8
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (1)

<223> Xaa= cysteic acid

<220>

<221> SITE

<222> (4)

<223> Xaa= Y, L, M, Nle, F or H

<400> 92

Xaa Tyr Thr Xaa Ser Phe Ser Pro
1 5

<210> 93

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (1)

<223> Xaa= cysteic acid

<220>

<221> SITE

<222> (5)

<223> Xaa= E, A, D, M, Q, S or G

<400> 93

Xaa Tyr Thr His Xaa Phe Ser Pro
1 5

<210> 94

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (1)

<223> Xaa= cysteic acid

<220>

<221> SITE

<222> (6)

<223> Xaa= V, A, N, T, L, F or S

<400> 94
Xaa Tyr Thr His Ser Xaa Ser Pro
1 5

<210> 95
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= cysteic acid

<220>
<221> SITE
<222> (7)
<223> Xaa=E, G, F, H, cysteic acid or S

<400> 95
Xaa Tyr Thr His Ser Phe Xaa Pro
1 5

<210> 96
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa=cysteic acid

<220>
<221> SITE
<222> (8)
<223> Xaa= F, W, G, A, H, P, G, N or S

<400> 96
Xaa Tyr Thr His Ser Phe Ser Xaa
1 5

<210> 97
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>

<221> SITE
<222> (1)
<223> Xaa= E, G, I, D, T, cysteic acid or S

<220>
<221> SITE
<222> (7)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (4)
<223> Xaa= any amino acid

<400> 97
Xaa Thr Asp Xaa Gly Ser Xaa Gly
1 5

<210> 98
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (2)
<223> Xaa=A, V, I, S, H, Y, T or F

<220>
<221> SITE
<222> (4)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (7)
<223> Xaa= any amino acid

<400> 98
Ser Xaa Asp Xaa Gly Ser Xaa Gly
1 5

<210> 99
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (3)
<223> Xaa= N, L, K, S, G, T, D, A, Q or E

<220>

<221> SITE
<222> (4)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (7)
<223> Xaa= any amino acid

<400> 99
Ser Thr Xaa Xaa Gly Ser Xaa Gly
1 5

<210> 100
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (4)
<223> Xaa= Y, L, M, Nle, F or H

<220>
<221> SITE
<222> (7)
<223> Xaa= any amino acid

<400> 100
Ser Thr Asp Xaa Gly Ser Xaa Gly
1 5

<210> 101
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (4)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (7)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (5)
<223> Xaa= E, A, D, M, Q, S or G

<400> 101

Ser Thr Asp Xaa Xaa Ser Xaa Gly
1 5

<210> 102

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>

<221> SITE

<222> (4)

<223> Xaa= any amino acid

<220>

<221> SITE

<222> (7)

<223> Xaa= any amino acid

<220>

<221> SITE

<222> (6)

<223> Xaa= V, A, N, T, L, F or S

<400> 102

Ser Thr Asp Xaa Gly Xaa Xaa Gly
1 5

<210> 103

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>

<221> SITE

<222> (4)

<223> Xaa= any amino acid

<220>

<221> SITE

<222> (7)

<223> Xaa= E, G, F, H, cysteic acid or S

<400> 103

Ser Thr Asp Xaa Gly Ser Xaa Gly
1 5

<210> 104

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (4)

<223> Xaa= any amino acid

<220>

<221> SITE

<222> (7)

<223> Xaa= any amino acid

<220>

<221> SITE

<222> (8)

<223> Xaa= F, W, G, A, H, P, G, N or S

<400> 104

Ser Thr Asp Xaa Gly Ser Xaa Xaa
1 5

<210> 105

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (1)

<223> Xaa= E, G, I, D, T, cysteic acid or S

<220>

<221> SITE

<222> (4)..(7)

<223> Xaa= any amino acid

<400> 105

Xaa Phe Ala Xaa Xaa Xaa Xaa Asn
1 5

<210> 106

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (1)

<223> Xaa= any amino acid

<220>

<221> SITE
<222> (2)
<223> Xaa= A, V, I, S, H, Y, T or F

<220>
<221> SITE
<222> (4)..(7)
<223> Xaa= any amino acid

<400> 106
Xaa Xaa Ala Xaa Xaa Xaa Xaa Asn
1 5

<210> 107
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (3)
<223> Xaa= N, L, K, S, G, T, D, A, Q or E

<220>
<221> SITE
<222> (4)..(7)
<223> Xaa= any amino acid

<400> 107
Xaa Phe Xaa Xaa Xaa Xaa Xaa Asn
1 5

<210> 108
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (4)
<223> Xaa= Y, L, M, Nle, F or H

<220>

<221> SITE
<222> (5)..(7)
<223> Xaa= any amino acid

<400> 108
Xaa Phe Ala Xaa Xaa Xaa Xaa Asn
1 5

<210> 109
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (4)
<223> Xaa = any amino acid

<220>
<221> SITE
<222> (5)
<223> Xaa= E, A, D, M, Q, S or G

<220>
<221> SITE
<222> (6)..(7)
<223> Xaa= any amino acid

<400> 109
Xaa Phe Ala Xaa Xaa Xaa Xaa Asn
1 5

<210> 110
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (4)..(5)
<223> Xaa= any amino acid

<220>

<221> SITE
<222> (6)
<223> Xaa= V, A, N, T, L, F or S

<220>
<221> SITE
<222> (7)
<223> Xaa= any amino acid

<400> 110
Xaa Phe Ala Xaa Xaa Xaa Xaa Asn
1 5

<210> 111
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (4)..(6)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (7)
<223> Xaa= E, G, F, H, cysteic acid or S

<400> 111
Xaa Phe Ala Xaa Xaa Xaa Xaa Asn
1 5

<210> 112
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (1)
<223> Xaa= any amino acid

<220>
<221> SITE
<222> (4)..(7)
<223> Xaa= any amino acid

<220>

<221> SITE
<222> (8)
<223> Xaa= F, W, G, A, H, P, G, N or S

<400> 112
Xaa Phe Ala Xaa Xaa Xaa Xaa Xaa
1 5

<210> 113
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 113
Glu Val Asn Leu Asp Ala Glu Phe Arg
1 5

<210> 114
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 114
Asp Tyr Lys Asp Asp Asp Lys
1 5

<210> 115
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 115
Ala Cys Gly Ser Glu Ser Met Asp Ser Gly Ile Ser Leu Asp Asn Lys
1 5 10 15

Trp

<210> 116
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 116
Trp Lys Lys Gly Ala Ile Ile Gly Leu Met Val Gly Gly Val Val Lys
1 5 10 15

Lys

<210> 117
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 117
Ala Asn Leu Ser Thr Phe Ala Gln Pro Arg Arg
1 5 10

<210> 118
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 118
Tyr Arg Tyr Gln Ser His Asp Tyr Ala Phe Ser Ser Val Glu Lys Leu
1 5 10 15

Leu His Leu Gly Gly Cys
20

<210> 119
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 119
Tyr Arg Tyr Gln Ser His Asp Tyr Ala Phe Ser Ser Val Glu Lys Leu
1 5 10 15

Leu His Leu Gly Gly Cys
20

<210> 120
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic

peptide sequence

<400> 120

Lys Thr Ile Thr Leu Glu Val Glu Pro Ser
1 5 10

<210> 121

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>

<221> SITE

<222> (9)

<223> Xaa= cysteic acid

<400> 121

Val Glu Ala Leu Tyr Leu Val Cys Xaa Gly Glu Arg
1 5 10

<210> 122

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 122

Val Glu Ala Leu Tyr Leu Val Glu Gly Glu Arg
1 5 10

<210> 123

<211> 363

<212> PRT

<213> Homo sapiens

<220>

<223> galactosyltransferase

<400> 123

Met Ala Ser Lys Ser Trp Leu Asn Phe Leu Thr Phe Leu Cys Gly Ser
1 5 10 15

Ala Ile Gly Phe Leu Leu Cys Ser Gln Leu Phe Ser Ile Leu Leu Gly
20 25 30

Glu Lys Val Asp Thr Gln Pro Asn Val Leu His Asn Asp Pro His Ala
35 40 45

Arg His Ser Asp Asp Asn Gly Gln Asn His Leu Glu Gly Gln Met Asn
50 55 60

Phe Asn Ala Asp Ser Ser Gln His Lys Asp Glu Asn Thr Asp Ile Ala
65 70 75 80

Glu Asn Leu Tyr Gln Lys Val Arg Ile Leu Cys Trp Val Met Thr Gly
 85 90 95
 Pro Gln Asn Leu Glu Lys Lys Ala Lys His Val Lys Ala Thr Trp Ala
 100 105 110
 Gln Arg Cys Asn Lys Val Leu Phe Met Ser Ser Glu Glu Asn Lys Asp
 115 120 125
 Phe Pro Ala Val Gly Leu Lys Thr Lys Glu Gly Arg Asp Gln Leu Tyr
 130 135 140
 Trp Lys Thr Ile Lys Ala Phe Gln Tyr Val His Glu His Tyr Leu Glu
 145 150 155 160
 Asp Ala Asp Trp Phe Leu Lys Ala Asp Asp Asp Thr Tyr Val Ile Leu
 165 170 175
 Asp Asn Leu Arg Trp Leu Leu Ser Lys Tyr Asp Pro Glu Glu Pro Ile
 180 185 190
 Tyr Phe Gly Arg Arg Phe Lys Pro Tyr Val Lys Gln Gly Tyr Met Ser
 195 200 205
 Gly Gly Ala Gly Tyr Val Leu Ser Lys Glu Ala Leu Lys Arg Phe Val
 210 215 220
 Asp Ala Phe Lys Thr Asp Lys Cys Thr His Ser Ser Ser Ile Glu Asp
 225 230 235 240
 Leu Ala Leu Gly Arg Cys Met Glu Ile Met Asn Val Glu Ala Gly Asp
 245 250 255
 Ser Arg Asp Thr Ile Gly Lys Glu Thr Phe His Pro Phe Val Pro Glu
 260 265 270
 His His Leu Ile Lys Gly Tyr Leu Pro Arg Thr Phe Trp Tyr Trp Asn
 275 280 285
 Tyr Asn Tyr Tyr Pro Pro Val Glu Gly Pro Gly Cys Cys Ser Asp Leu
 290 295 300
 Ala Val Ser Phe His Tyr Val Asp Ser Thr Thr Met Tyr Glu Leu Glu
 305 310 315 320
 Tyr Leu Val Tyr His Leu Arg Pro Tyr Gly Tyr Leu Tyr Arg Tyr Gln
 325 330 335
 Pro Thr Leu Pro Glu Arg Ile Leu Lys Glu Ile Ser Gln Ala Asn Lys
 340 345 350
 Asn Glu Asp Thr Lys Val Lys Leu Gly Asn Pro
 355 360

<210> 124

<211> 405

<212> PRT

<213> Homo sapiens

<220>

<223> Homo sapiens sialyltransferase 1

<400> 124

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | His | Thr | Asn | Leu | Lys | Lys | Lys | Phe | Ser | Cys | Cys | Val | Leu | Val | Phe |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Leu | Phe | Ala | Val | Ile | Cys | Val | Trp | Lys | Glu | Lys | Lys | Lys | Gly | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Tyr | Tyr | Asp | Ser | Phe | Lys | Leu | Gln | Thr | Lys | Glu | Phe | Gln | Val | Leu | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ser | Leu | Gly | Lys | Leu | Ala | Met | Gly | Ser | Asp | Ser | Gln | Ser | Val | Ser | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ser | Ser | Thr | Gln | Asp | Pro | His | Arg | Gly | Arg | Gln | Thr | Leu | Gly | Ser | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Arg | Gly | Leu | Ala | Lys | Ala | Lys | Pro | Glu | Ala | Ser | Phe | Gln | Val | Trp | Asn |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Lys | Asp | Ser | Ser | Ser | Lys | Asn | Leu | Ile | Pro | Arg | Leu | Gln | Lys | Ile | Trp |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Lys | Asn | Tyr | Leu | Ser | Met | Asn | Lys | Tyr | Lys | Val | Ser | Tyr | Lys | Gly | Pro |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Pro | Gly | Ile | Lys | Phe | Ser | Ala | Glu | Ala | Leu | Arg | Cys | His | Leu | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asp | His | Val | Asn | Val | Ser | Met | Val | Glu | Val | Thr | Asp | Phe | Pro | Phe | Asn |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Thr | Ser | Glu | Trp | Glu | Gly | Tyr | Leu | Pro | Lys | Glu | Ser | Ile | Arg | Thr | Lys |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ala | Gly | Pro | Trp | Gly | Arg | Cys | Ala | Val | Val | Ser | Ser | Ala | Gly | Ser | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Lys | Ser | Ser | Gln | Leu | Gly | Arg | Glu | Ile | Asp | Asp | His | Asp | Ala | Val | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Arg | Phe | Asn | Gly | Ala | Pro | Thr | Ala | Asn | Phe | Gln | Gln | Asp | Val | Gly | Thr |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Lys | Thr | Thr | Ile | Arg | Leu | Met | Asn | Ser | Gln | Leu | Val | Thr | Thr | Glu | Lys |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Arg | Phe | Leu | Lys | Asp | Ser | Leu | Tyr | Asn | Glu | Gly | Ile | Leu | Ile | Val | Trp |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Asp | Pro | Ser | Val | Tyr | His | Ser | Asp | Ile | Pro | Lys | Trp | Tyr | Gln | Asn | Pro |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asp | Tyr | Asn | Phe | Phe | Asn | Asn | Tyr | Lys | Thr | Tyr | Arg | Lys | Leu | His | Pro |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Asn | Gln | Pro | Phe | Tyr | Ile | Leu | Lys | Pro | Gln | Met | Pro | Trp | Glu | Leu | Trp |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Asp | Ile | Leu | Gln | Glu | Ile | Ser | Pro | Glu | Glu | Ile | Gln | Pro | Asn | Pro | Pro |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ser | Ser | Gly | Met | Leu | Gly | Ile | Ile | Ile | Met | Met | Thr | Leu | Cys | Asp | Gln |
| | | | 325 | | | | | | 330 | | | | | 335 | |

Val Asp Ile Tyr Glu Phe Leu Pro Ser Lys Arg Lys Thr Asp Val Cys
340 345 350

Tyr Tyr Tyr Gln Lys Phe Phe Asp Ser Ala Cys Thr Met Gly Ala Tyr
355 360 365

His Pro Leu Leu Tyr Glu Lys Asn Leu Val Lys His Leu Asn Gln Gly
370 375 380

Thr Asp Glu Asp Ile Tyr Leu Leu Gly Lys Ala Thr Leu Pro Gly Phe
385 390 395 400

Arg Thr Ile His Cys
405

<210> 125
<211> 518
<212> PRT
<213> Homo sapiens

<220>
<223> Homo sapiens aspartyl protease 1

<400> 125
Met Gly Ala Leu Ala Arg Ala Leu Leu Leu Pro Leu Leu Ala Gln Trp
1 5 10 15

Leu Leu Arg Ala Ala Pro Glu Leu Ala Pro Ala Pro Phe Thr Leu Pro
20 25 30

Leu Arg Val Ala Ala Ala Thr Asn Arg Val Val Ala Pro Thr Pro Gly
35 40 45

Pro Gly Thr Pro Ala Glu Arg His Ala Asp Gly Leu Ala Leu Ala Leu
50 55 60

Glu Pro Ala Leu Ala Ser Pro Ala Gly Ala Ala Asn Phe Leu Ala Met
65 70 75 80

Val Asp Asn Leu Gln Gly Asp Ser Gly Arg Gly Tyr Tyr Leu Glu Met
85 90 95

Leu Ile Gly Thr Pro Pro Gln Lys Leu Gln Ile Leu Val Asp Thr Gly
100 105 110

Ser Ser Asn Phe Ala Val Ala Gly Thr Pro His Ser Tyr Ile Asp Thr
115 120 125

Tyr Phe Asp Thr Glu Arg Ser Ser Thr Tyr Arg Ser Lys Gly Phe Asp
130 135 140

Val Thr Val Lys Tyr Thr Gln Gly Ser Trp Thr Gly Phe Val Gly Glu
145 150 155 160

Asp Leu Val Thr Ile Pro Lys Gly Phe Asn Thr Ser Phe Leu Val Asn
165 170 175

Ile Ala Thr Ile Phe Glu Ser Glu Asn Phe Phe Leu Pro Gly Ile Lys
180 185 190

Trp Asn Gly Ile Leu Gly Leu Ala Tyr Ala Thr Leu Ala Lys Pro Ser
195 200 205

Ser Ser Leu Glu Thr Phe Phe Asp Ser Leu Val Thr Gln Ala Asn Ile
 210 215 220
 Pro Asn Val Phe Ser Met Gln Met Cys Gly Ala Gly Leu Pro Val Ala
 225 230 235 240
 Gly Ser Gly Thr Asn Gly Gly Ser Leu Val Leu Gly Gly Ile Glu Pro
 245 250 255
 Ser Leu Tyr Lys Gly Asp Ile Trp Tyr Thr Pro Ile Lys Glu Glu Trp
 260 265 270
 Tyr Tyr Gln Ile Glu Ile Leu Lys Leu Glu Ile Gly Gly Gln Ser Leu
 275 280 285
 Asn Leu Asp Cys Arg Glu Tyr Asn Ala Asp Lys Ala Ile Val Asp Ser
 290 295 300
 Gly Thr Thr Leu Leu Arg Leu Pro Gln Lys Val Phe Asp Ala Val Val
 305 310 315 320
 Glu Ala Val Ala Arg Ala Ser Leu Ile Pro Glu Phe Ser Asp Gly Phe
 325 330 335
 Trp Thr Gly Ser Gln Leu Ala Cys Trp Thr Asn Ser Glu Thr Pro Trp
 340 345 350
 Ser Tyr Phe Pro Lys Ile Ser Ile Tyr Leu Arg Asp Glu Asn Ser Ser
 355 360 365
 Arg Ser Phe Arg Ile Thr Ile Leu Pro Gln Leu Tyr Ile Gln Pro Met
 370 375 380
 Met Gly Ala Gly Leu Asn Tyr Glu Cys Tyr Arg Phe Gly Ile Ser Pro
 385 390 395 400
 Ser Thr Asn Ala Leu Val Ile Gly Ala Thr Val Met Glu Gly Phe Tyr
 405 410 415
 Val Ile Phe Asp Arg Ala Gln Lys Arg Val Gly Phe Ala Ala Ser Pro
 420 425 430
 Cys Ala Glu Ile Ala Gly Ala Ala Val Ser Glu Ile Ser Gly Pro Phe
 435 440 445
 Ser Thr Glu Asp Val Ala Ser Asn Cys Val Pro Ala Gln Ser Leu Ser
 450 455 460
 Glu Pro Ile Leu Trp Ile Val Ser Tyr Ala Leu Met Ser Val Cys Gly
 465 470 475 480
 Ala Ile Leu Leu Val Leu Ile Val Leu Leu Leu Pro Phe Arg Cys
 485 490 495
 Gln Arg Arg Pro Arg Asp Pro Glu Val Val Asn Asp Glu Ser Ser Leu
 500 505 510
 Val Arg His Arg Trp Lys
 515

<210> 126

```
<220>
<223> Homo sapiens syntaxin 6
```

Met Ser Met Glu Asp Pro Phe Phe Val Val Lys Gly Glu Val Gln Lys
10 5 10 15

Leu Phe Ala Val Leu Val Val Leu Ile Leu Phe Leu Val Leu
245 250 255

<220>

<223> Description of Artificial Sequence: nucleic acid
encoding recombinant fusion protein

<400> 127

```

atgctgctgc tgctgctgct gctgggcctg aggctacagc tctccctggg catcatccca 60
gttgaggagg agaaccggga cttctggaac cgcgaggcag ccgaggccct ggggtgccgc 120
aagaagctgc agcctgcaca gacagccgcc aagaacctca tcatcttctt gggcgatggg 180
atgggggtgt ctacggtgac agctgccagg atcctaaaag ggcagaagaa ggacaaactg 240
gggcctgaga tacccttggc catggaccgc tccccatatg tggctctgtc caagacatac 300
aatgtagaca aacatgtgcc agacagtggg gccacagcca cggcctacct gtgcgggggtc 360
aagggcaact tccagaccat tggcttgagt gcagccgccc gctttaacca gtgcaacacg 420
acacgcgcca acgaggtcat ctccgtgatg aatcgggcca agaaagcagg gaagtcagt 480
ggagtggtaa ccaccacacg agtgcagcac gcctcgccag ccggcaccta cgccacacg 540
gtgaaccgca actggtactc ggacgcccag gtgcctgcct cggcccgcga ggaggggtgc 600
caggacatcg ctacgcagct catctccaac atggacattg acgtgatcct aggtggaggc 660
cgaaagtaca tgtttcccat gggaacccca gacctgagt acccagatga ctacagccaa 720
ggtgggacca ggctggacgg gaagaatctg gtgcaggaat ggctggcgaa gcgccagggt 780
gcccggtatg tgtggaaccg cactgagctc atgcaggctt ccctggaccc gtctgtgacc 840
catctcatgg gtctctttga gcctggagac atgaaatacg agatccaccg agactccaca 900
ctggaccctt cctgatgga gatgacagag gctgccctgc cctgctgag caggaacccc 960
cgcggttctt tctcttctgt ggaggggtgt cgcacgcacc atggtcatca tgaaagcagg 1020
gcttaccggg cactgactga gacgatcatg ttcgacgacg ccattgagag ggcgggccag 1080
ctcaccagcg aggaggacac gctgagcctc gtcactgccg accactccca cgtcttctcc 1140
ttcggaggct accccttgcg agggagctcc atcttcgggc tggcccctgg caaggcccgg 1200
gacaggaagg cctacacggg cctcctatac ggaaacggtc caggctatgt gctcaaggac 1260
ggcgcccggc cggatgttac cgagagcgag agcgggagcc ccgagtatcg gcagcagtca 1320
gcagtgcacc tggacgaaga gacccacgca ggcgaggacg tggcggtgtt cgcgcgcgcc 1380
ccgcaggcgc acctggttca cggcgtgcag gagcagacct tcatagcgca cgtcatggcc 1440
ttcgccgctt gcctggagcc ctacaccgcc tgcgacctgg cgccccccgc cggcaccacc 1500
gacgccgcgc acccaggtaa ctatgaagtt gaattccgaa gagcactcta cgtagagggt 1560
gaaagaggat tcttctacac tccaaaggca ctctacctcg tagagggtga aagaggattc 1620
ttctacacta gtctcatgac catagcctat gtcattggtg ccatctgcgc cctcttcatg 1680
ctgccactct gcctcatggt ggactacaag gatgatgatg acaagtag 1728

```

<210> 128

<211> 575

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: recombinant
fusion protein sequence

<400> 128

```

Met Leu Leu Leu Leu Leu Leu Leu Gly Leu Arg Leu Gln Leu Ser Leu
  1                      5                      10                     15

Gly Ile Ile Pro Val Glu Glu Glu Asn Pro Asp Phe Trp Asn Arg Glu
 20                      25                     30

Ala Ala Glu Ala Leu Gly Ala Ala Lys Lys Leu Gln Pro Ala Gln Thr
 35                      40                     45

Ala Ala Lys Asn Leu Ile Ile Phe Leu Gly Asp Gly Met Gly Val Ser
 50                      55                     60

Thr Val Thr Ala Ala Arg Ile Leu Lys Gly Gln Lys Lys Asp Lys Leu
 65                      70                     75                     80

Gly Pro Glu Ile Pro Leu Ala Met Asp Arg Phe Pro Tyr Val Ala Leu
 85                      90                     95

Ser Lys Thr Tyr Asn Val Asp Lys His Val Pro Asp Ser Gly Ala Thr

```

| 100 | | | | | 105 | | | | | 110 | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|-----|--|-----|--|--|--|--|
| Ala Thr | Ala Tyr | Leu Cys | Gly Val | Lys Gly | Asn Phe | Gln Thr | Ile Gly | | | | | | | |
| | 115 | | | 120 | | 125 | | | | | | | | |
| Leu Ser | Ala Ala | Ala Arg | Phe Asn | Gln Cys | Asn Thr | Thr Arg | Gly Asn | | | | | | | |
| | 130 | | 135 | | 140 | | | | | | | | | |
| Glu Val | Ile Ser | Val Met | Asn Arg | Ala Lys | Lys Ala | Gly Lys | Ser Val | | | | | | | |
| 145 | | 150 | | | 155 | | 160 | | | | | | | |
| Gly Val | Val Thr | Thr Thr | Arg Val | Gln His | Ala Ser | Pro Ala | Gly Thr | | | | | | | |
| | | 165 | | 170 | | | 175 | | | | | | | |
| Tyr Ala | His Thr | Val Asn | Arg Asn | Trp Tyr | Ser Asp | Ala Asp | Val Pro | | | | | | | |
| | 180 | | 185 | | | 190 | | | | | | | | |
| Ala Ser | Ala Arg | Gln Glu | Gly Cys | Gln Asp | Ile Ala | Thr Gln | Leu Ile | | | | | | | |
| | 195 | | 200 | | 205 | | | | | | | | | |
| Ser Asn | Met Asp | Ile Asp | Val Ile | Leu Gly | Gly Gly | Gly Arg | Lys Tyr | Met | | | | | | |
| | 210 | | 215 | | 220 | | | | | | | | | |
| Phe Pro | Met Gly | Thr Pro | Asp Pro | Glu Tyr | Pro Asp | Asp Tyr | Ser Gln | | | | | | | |
| 225 | | 230 | | | 235 | | 240 | | | | | | | |
| Gly Gly | Thr Arg | Leu Asp | Gly Lys | Asn Leu | Val Gln | Glu Trp | Leu Ala | | | | | | | |
| | | 245 | | 250 | | | 255 | | | | | | | |
| Lys Arg | Gln Gly | Ala Arg | Tyr Val | Trp Asn | Arg Thr | Glu Leu | Met Gln | | | | | | | |
| | 260 | | | 265 | | 270 | | | | | | | | |
| Ala Ser | Leu Asp | Pro Ser | Val Thr | His Leu | Met Gly | Leu Phe | Glu Pro | | | | | | | |
| | 275 | | 280 | | | 285 | | | | | | | | |
| Gly Asp | Met Lys | Tyr Glu | Ile His | Arg Asp | Ser Thr | Leu Asp | Pro Ser | | | | | | | |
| | 290 | | 295 | | 300 | | | | | | | | | |
| Leu Met | Glu Met | Thr Glu | Ala Ala | Leu Arg | Leu Leu | Ser Arg | Asn Pro | | | | | | | |
| 305 | | 310 | | 315 | | | 320 | | | | | | | |
| Arg Gly | Phe Phe | Leu Phe | Val Glu | Gly Gly | Arg Ile | Asp His | Gly His | | | | | | | |
| | | 325 | | 330 | | | 335 | | | | | | | |
| His Glu | Ser Arg | Ala Tyr | Arg Ala | Leu Thr | Glu Thr | Ile Met | Phe Asp | | | | | | | |
| | 340 | | 345 | | | 350 | | | | | | | | |
| Asp Ala | Ile Glu | Arg Ala | Gly Gln | Leu Thr | Ser Glu | Glu Asp | Thr Leu | | | | | | | |
| | 355 | | 360 | | | 365 | | | | | | | | |
| Ser Leu | Val Thr | Ala Asp | His Ser | His Val | Phe Ser | Phe Gly | Gly Tyr | | | | | | | |
| | 370 | | 375 | | 380 | | | | | | | | | |
| Pro Leu | Arg Gly | Ser Ser | Ile Phe | Gly Leu | Ala Pro | Gly Lys | Ala Arg | | | | | | | |
| 385 | | 390 | | 395 | | | 400 | | | | | | | |
| Asp Arg | Lys Ala | Tyr Thr | Val Leu | Leu Tyr | Gly Asn | Gly Pro | Gly Tyr | | | | | | | |
| | | 405 | | 410 | | | 415 | | | | | | | |
| Val Leu | Lys Asp | Gly Ala | Arg Pro | Asp Val | Thr Glu | Ser Glu | Ser Gly | | | | | | | |
| | 420 | | | 425 | | 430 | | | | | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Pro | Glu | Tyr | Arg | Gln | Gln | Ser | Ala | Val | Pro | Leu | Asp | Glu | Glu | Thr |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| His | Ala | Gly | Glu | Asp | Val | Ala | Val | Phe | Ala | Arg | Gly | Pro | Gln | Ala | His |
| | | 450 | | | | 455 | | | | | 460 | | | | |
| Leu | Val | His | Gly | Val | Gln | Glu | Gln | Thr | Phe | Ile | Ala | His | Val | Met | Ala |
| | | 465 | | | 470 | | | | 475 | | | | | 480 | |
| Phe | Ala | Ala | Cys | Leu | Glu | Pro | Tyr | Thr | Ala | Cys | Asp | Leu | Ala | Pro | Pro |
| | | | 485 | | | | | | 490 | | | | | 495 | |
| Ala | Gly | Thr | Thr | Asp | Ala | Ala | His | Pro | Gly | Asn | Tyr | Glu | Val | Glu | Pro |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Arg | Arg | Ala | Leu | Tyr | Val | Glu | Gly | Glu | Arg | Gly | Phe | Phe | Tyr | Thr | Pro |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Lys | Ala | Leu | Tyr | Leu | Val | Glu | Gly | Glu | Arg | Gly | Phe | Phe | Tyr | Thr | Ser |
| | | 530 | | | | 535 | | | | | 540 | | | | |
| Leu | Met | Thr | Ile | Ala | Tyr | Val | Met | Ala | Ala | Ile | Cys | Ala | Leu | Phe | Met |
| | | 545 | | | 550 | | | | | 555 | | | | 560 | |
| Leu | Pro | Leu | Cys | Leu | Met | Val | Asp | Tyr | Lys | Asp | Asp | Asp | Asp | Lys | |
| | | | 565 | | | | | | 570 | | | | | 575 | |

<210> 129

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<400> 129

Lys Met Asp Ala Glu

1

5

<210> 130

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic peptide sequence

<400> 130

Gly Arg Arg Gly Ser

1

5

<210> 131

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic

peptide sequence

<400> 131

Val Glu Ala Asn Tyr Glu Val Glu Gly Glu
1 5 10

<210> 132

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 132

Val Glu Ala Asn Tyr Ala Val Glu Gly Glu
1 5 10

<210> 133

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 133

Lys Thr Ile Asn Leu Glu Val Glu Pro Ser
1 5 10

<210> 134

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>

<221> MOD_RES

<222> (5)

<223> Nle

<400> 134

Lys Thr Ile Asn Xaa Glu Val Glu Pro Ser
1 5 10

<210> 135

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> MOD_RES

<222> (5)
 <223> Nle

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 135
 Lys Thr Ile Asn Xaa Glu Val Asp Pro Ser
 1 5 10

 <210> 136
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <221> MOD_RES
 <222> (5)
 <223> Nle

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 136
 Lys Thr Ile Asn Xaa Asp Val Asp Pro Ser
 1 5 10

 <210> 137
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 137
 Lys Thr Ile Ser Leu Asp Val Glu Pro Ser
 1 5 10

 <210> 138
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 138
 Lys Thr Ile Ser Leu Asp Val Asp Pro Ser
 1 5 10

 <210> 139
 <211> 4
 <212> PRT
 <213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 139
Lys Met Asp Ala
1

<210> 140
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 140
Ser Tyr Glu Val
1

<210> 141
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 141
Ser Glu Val Ser Tyr Glu Val Glu Phe Arg
1 5 10

<210> 142
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 142
Asn Leu Asp Ala
1

<210> 143
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 143
Ser Glu Val Ser Tyr Asp Ala Glu Phe Arg
1 5 10

<210> 144
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 144
Ser Glu Val Ser Tyr Glu Ala Glu Phe Arg
1 5 10

<210> 145
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 145
Thr Arg Pro Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser
1 5 10 15
Glu Val Ser Tyr Glu Val Glu Phe Arg
20 25

<210> 146
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 146
Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Val Ser Tyr Glu
1 5 10 15
Val Glu Phe Arg
20

<210> 147
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 147
Lys Thr Glu Glu Ile Ser Glu Val Ser Tyr Glu Val Glu Phe Arg
1 5 10 15

<210> 148
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 148
 Thr Glu Val Ser Tyr Glu Val Glu Phe Arg
 1 5 10

 <210> 149
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 149
 Ser Glu Val Asp Tyr Glu Val Glu Phe Arg
 1 5 10

 <210> 150
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 150
 Thr Glu Val Asp Tyr Glu Val Glu Phe Arg
 1 5 10

 <210> 151
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic
 peptide sequence

 <400> 151
 Thr Glu Ile Asp Tyr Glu Val Glu Phe Arg
 1 5 10

 <210> 152
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: synthetic

peptide sequence

<400> 152

Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg
1 5 10

<210> 153

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 153

Ser Glu Ile Asp Tyr Glu Val Glu Phe Arg
1 5 10

<210> 154

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<221> SITE

<222> (11)

<223> Xaa=tryptophan

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 154

Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg Xaa Lys Lys
1 5 10

<210> 155

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<221> SITE

<222> (16)

<223> Xaa=tryptophan

<220>

<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 155

Lys Thr Glu Glu Ile Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg Xaa
1 5 10 15

Lys Lys

<210> 156

<211> 23

<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (21)
<223> Xaa=tryptophan

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 156
Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Ile Ser Tyr Glu Val
1 5 10 15

Glu Phe Arg Xaa Lys Lys
20

<210> 157
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (26)
<223> Xaa=tryptophan

<400> 157
Thr Arg Pro Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser
1 5 10 15

Glu Ile Ser Tyr Glu Val Glu Phe Arg Xaa Lys Lys
20 25

<210> 158
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (11)
<223> Xaa=tryptophan

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 158
Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg Xaa Lys Lys
1 5 10

<210> 159
<211> 18

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<220>
<221> SITE
<222> (16)
<223> Xaa=tryptophan

<400> 159
Lys Thr Glu Glu Ile Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg
1 5 10 15

Xaa Lys Lys

<210> 160
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (21)
<223> Xaa=tryptophan

<220>
<223> Description of Artificial Sequence: synthetic
peptide

<400> 160
Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Ile Ser Tyr
1 5 10 15

Glu Val Glu Phe Arg Xaa Lys Lys
20

<210> 161
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (26)
<223> Xaa=tryptophan

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 161
Thr Arg Pro Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile
1 5 10 15

Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg Xaa Lys Lys
20 25

<210> 162
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (11)
<223> Xaa=oregon green

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 162
Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg Xaa Lys Lys
1 5 10

<210> 163
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (16)
<223> Xaa=oregon green

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 163
Lys Thr Glu Glu Ile Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg Xaa
1 5 10 15

Lys Lys

<210> 164
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (21)
<223> Xaa=oregon green

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 164
Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Ile Ser Tyr Glu
1 5 10 15

Val Glu Phe Arg Xaa Lys Lys
20

<210> 165
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (26)
<223> Xaa=oregon green

<220>
<223> Description of Artificial Sequence: synthetic peptide sequence

<400> 165
Thr Arg Pro Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser
1 5 10 15

Glu Ile Ser Tyr Glu Val Glu Phe Arg Xaa Lys Lys
20 25

<210> 166
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (11)
<223> Xaa=oregon green

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 166
Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg Xaa Lys Lys
1 5 10

<210> 167
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (16)
<223> Xaa=oregon green

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 167
Lys Thr Glu Glu Ile Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg
1 5 10 15

Xaa Lys Lys

<210> 168
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (21)
<223> Xaa=oregon green

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 168
Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Ile Ser Tyr
1 5 10 15
Glu Val Glu Phe Arg Xaa Lys Lys
20

<210> 169
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<221> SITE
<222> (26)
<223> Xaa=oregon green

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 169
Thr Arg Pro Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile
1 5 10 15
Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg Xaa Lys Lys
20 25

<210> 170
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 170
Ser Glu Val Asn Tyr Glu Val Glu Phe Arg
1 5 10

<210> 171
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: synthetic
 primer for site-directed mutagenesis of APP

<400> 171
 gagatctctg aaattagtta tgaagtagaa ttccgacatg actcagg 47

<210> 172
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: synthetic
 primer for site-directed mutagenesis of APP

<400> 172
 tgagtcacgt cggaattcta cttcataact aatttcagag atctctc 48

<210> 173
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: synthetic
 primer for site-directed mutagenesis of APP

<400> 173
 gagatctctg aaagtagtta tgaagtagaa ttccgacatg actcagg 47

<210> 174
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: synthetic
 primer for site-directed mutagenesis of APP

<400> 174
 tgagtcacgt cggaattcta cttcataact actttcagag atctctc 48

<210> 175
 <211> 47
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: synthetic
 primer for site-directed mutagenesis of APP

<400> 175
 gagatctctg aaattagtta tgaagcagaa ttccgacatg actcagg 47

<210> 176
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: synthetic
 primer for site-directed mutagenesis of APP

<400> 176
tgagtcatgt cggaattctg cttcataact aatttcagag atctcctc

48

<210> 177
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 177
Val Ser Tyr Glu Val
1 5

<210> 178
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 178
Val Ser Tyr Asp Ala
1 5

<210> 179
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 179
Ile Ser Tyr Glu Val
1 5

<210> 180
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 180
Val Lys Met Asp Ala
1 5

<210> 181
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
primer for generating mutant construct named
MBPC125-SYEV

<400> 181
gacatctctg aagtgagtta ttaggcagaa ttccgacatg actcagg

47

<210> 182
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
primer for generating mutant construct named
MBPC125-SYEV

<400> 182
tgagtcacgt cggaattctg cctaataact cacttcagag atctctc

48

<210> 183
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 183
Lys Lys Ser Tyr Glu Val
1 5

<210> 184
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 184
Val Glu Ala Asn Tyr Glu Val Glu Gly Glu
1 5 10

<210> 185
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 185
Val Glu Ala Asn Tyr Ala Val Glu Gly Glu
1 5 10

<210> 186
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 186
Asp Tyr Lys Asp Asp Asp Asp Lys
1 5

<210> 187
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 187
Ser Tyr Glu Ala
1

<210> 188
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 188
Ser Tyr Ala Val
1

<210> 189
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
peptide sequence

<400> 189
Val Ser Tyr Glu Ala
1 5

<210> 190
<211> 13
<212> PRT
<213> Artificial sequence

<220>

<223> Description of artificial sequence: synthetic peptide sequence

<400> 190

Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg Trp Lys Lys
1 5 10

<210> 191

<211> 23

<212> PRT

<213> Artificial sequence

<220>

<223> Description of artificial sequence: synthetic peptide sequence

<400> 191

Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Ile Ser Tyr Glu
1 5 10 15

Val Glu Phe Arg Trp Lys Lys
20

<210> 192

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> Description of artificial sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (1)..(1)

<223> amino acid at position 1 is biotinylated

<220>

<221> SITE

<222> (14)..(14)

<223> cys at position 14 is derivatized with an oregon green

<400> 192

Lys Glu Ile Ser Glu Ile Ser Tyr Glu Val Glu Phe Arg Lys Lys
1 5 10 15

<210> 193

<211> 22

<212> PRT

<213> Artificial sequence

<220>

<223> Description of artificial sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (1)..(1)

<223> amino acid at position 1 is biotinylated

<220>

<221> SITE

<222> (21)..(21)

<223> cys at position 21 is derivatized with an oregon green

<400> 193

Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Ile Ser Tyr Glu
1 5 10 15

Val Glu Phe Arg Lys Lys
20

<210> 194

<211> 6806

<212> DNA

<213> Artificial sequence

<220>

<223> Description of artificial sequence: synthetic DNA sequence

<400> 194

```
ccgacacccat cgaatggcgc aaaacctttc gcggtatggc atgatatgcgc ccggaagaga      60
gtcaattcag ggtggtgaat gtgaaaccag taacgttata cgatgtcgca gagtatgccg      120
gtgtctctta tcagaccgtt tcccgctggg tgaaccaggc cagccacgtt tctgcgaaaa      180
cgcgggaaaa agtggaagcg gcgatggcgg agctgaatta cattcccaac cgcgtaggcac      240
aacaactggc gggcaaacag tcgttgctga ttggcggtgc cacctccagt ctggccctgc      300
acgcgccgtc gcaaattgtc gcggcgatta aatctcgcgc cgatcaactg ggtgccagcg      360
tggtggtgtc gatggtagaa cgaagcggcg tcgaagcctg taaagcggcg gtgcacaatc      420
ttctcgcgca acgcgtcagt gggctgatca ttaactatcc gctggatgac caggatgcca      480
ttgctgtgga agctgcctgc actaatgttc cggcgttatt tcttgatgtc tctgaccaga      540
caccatcaa cagtattatt ttctcccatg aagacgggtac gcgactgggc gtggagcatc      600
tggtcgcatt gggtcaccag caaatcgcgc tgtagcggg ccattaagt tctgtctcgg      660
cgcgctctcg tctggctggc tggcataaat atctcactcg caatcaaatt cagccgatag      720
cggaacggga aggcgactgg agtgccatgt ccggttttca acaaaccatg caaatgctga      780
atgagggcat cgttcccact gcgatgctgg ttgccaacga tcagatggcg ctgggcgcaa      840
tgcgcgccat taccgagtcg gggctgcgcg ttggtgcgga tatctcggtg gtgggatacg      900
acgataccga agacagctca tgttatatcc cgccgttaac caccatcaaa caggattttc      960
gcctgctggg gcaaaccagc gtggaccgct tgctgcaact ctctcagggc caggcggtga     1020
agggcaatca gctgttgccc gtctcactgg tgaaaagaaa aaccaccctg gcgcccaata     1080
cgcaaaccgc ctctccccgc gcgttggccg attcattaat gcagctggca cgacaggttt     1140
cccgactgga aagcgggcag tgagcgcaac gcaattaatg tgagttagct cactcattag     1200
gcacaattct catgtttgac agcttatcat cgactgcacg gtgcaccaat gcttctggcg     1260
tcaggcagcc atcggaagct gtggtatggc tgtgcaggtc gtaaatcact gcataattcg     1320
tgtcgctcaa ggcgcactcc cgttctggat aatgtttttt gcgccgacat cataacggtt     1380
ctggcaaata ttctgaaatg agctgttgac aattaatcat cggctcgtat aatgtgtgga     1440
attgtgagcg gataacaatt tcacacagga aacagccagt ccgttttaggt gttttcacga     1500
gcacttcacc aacaaggacc atagattatg aaaactgaag aaggtaaact ggtaatctgg     1560
attaacggcg ataaaggcta taacggctct gctgaagtcg gtaagaaatt cgagaaagat     1620
accggaatta aagtcaccgt tgagcatccg gataaactgg aagagaaatt ccacaggtt     1680
gcggcaactg gcgatggccc tgacattatc ttctgggcac acgaccgctt tggtggctac     1740
```

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| gctcaatctg | gcoctgttggc | tgaaatcacc | ccggacaaaag | cgttccagga | caagctgtat | 1800 |
| ccgtttacct | gggatgccgt | acgttacaac | ggcaagctga | ttgcttacct | gatcgctgtt | 1860 |
| gaagcgttat | cgctgattta | taacaaagat | ctgctgccga | acccgccaaa | aacctgggaa | 1920 |
| gagatcccgg | cgctggataa | agaactgaaa | gcgaaaggta | agagcgcgct | gatgttcaac | 1980 |
| ctgcaagaac | cgtacttcac | ctggccgctg | attgctgctg | acgggggtta | tgcgttcaag | 2040 |
| tatgaaaacg | gcaagtacga | cattaaagac | gtgggcgtgg | ataacgctgg | cgcgaaagcg | 2100 |
| ggctctgacct | tcctggttga | cctgattaaa | aacaaacaca | tgaatgcaga | caccgattac | 2160 |
| tccatcgcag | aagctgcctt | taataaaggc | gaaacagcga | tgaccatcaa | cggccccgtgg | 2220 |
| gcatgggtcca | acatcgacac | cagcaaagtg | aattatgggtg | taacgggtact | gccgaccttc | 2280 |
| aagggtcaac | catccaaacc | gttcgttggc | gtgctgagcg | caggatttaa | cgccgccagt | 2340 |
| ccgaacaaaag | agctggcgaa | agagttcttc | gaaaactatc | tgctgactga | tgaaggctctg | 2400 |
| gaagcgggtta | ataaagacaa | accgctgggt | gccgtagcgc | tgaagtctta | cgaggaagag | 2460 |
| ttggcgaaaag | atccacgtat | tgccgccacc | atggaaaacg | cccagaaagg | tgaaatcatg | 2520 |
| ccgaacatcc | cgcagatgtc | cgctttctgg | tatgccgtgc | gtactgcggg | gatcaacgcc | 2580 |
| gccagcggtc | gtcagactgt | cgatgaagcc | ctgaaagacg | cgcagactaa | ttcgagctcg | 2640 |
| gtacccggcc | ggggatccat | cgagggtagg | gccgaccgag | gactgaccac | tcgaccaggt | 2700 |
| tctgggttga | caaatatcaa | gacggaggag | atctctgaag | tgaatctgga | tgcagaattc | 2760 |
| cgacatgact | caggatatga | agttcatcat | caaaaattgg | tgttctttgc | agaagatgtg | 2820 |
| ggttcaaaca | aagggtgcaat | cattggactc | atggtgggcg | gtgttggtcat | agcgacagtg | 2880 |
| atcgatcatca | ccttgggtgat | gctgaagaag | aaacagtaca | catccattca | tcattggtgtg | 2940 |
| gtggagggttg | acgccgctgt | caccccagag | gagcgccacc | tgtccaagat | gcagcagaac | 3000 |
| ggctacgaaa | atccaacctc | caagttcttt | gagcagatgc | agaactagac | ccccgccaca | 3060 |
| gcagcctctg | aagttggaca | gcaaaaccat | tgcttcacta | cccatcggtg | tcattttata | 3120 |
| gaataatgtg | ggaagaaaca | aaccgcgttt | atgatttact | cattatcgcc | ttttgacagc | 3180 |
| tgtgctgtaa | cacaagtaga | tgctgaact | tgaattaatc | cacacatcag | taatgtattc | 3240 |
| tatctctctt | tacatttttg | tctctatact | acattattaa | tggtttttgt | gtactgtaaa | 3300 |
| gaatttagct | gtatcaaaact | agtaatagcc | tgaattcagt | aacctaaccc | tcgatggatc | 3360 |
| ctctagagtc | gacctgcagg | caagcttggc | actggccgtc | gtttttacaac | gtcgtgactg | 3420 |
| ggaaaaccct | ggcggttacct | aacttaatcg | ccttgacgca | catccccctt | tcgccagctg | 3480 |
| gcgtaatagc | gaagaggccc | gcaccgatcg | cccttcccaa | cagttgcgca | gcctgaatgg | 3540 |
| cgaatggcag | cttggctgtt | ttggcggatg | agagaagatt | ttcagcctga | tacagattaa | 3600 |
| atcagaacgc | agaagcggtc | tgataaaaaca | gaatttgcct | ggcggcagta | gcgcggtggt | 3660 |

| | | | | | | |
|-------------|------------|------------|------------|-------------|-------------|------|
| cccacctgac | cccatgccga | actcagaagt | gaaacgccgt | agcgccgatg | gtagtgtggg | 3720 |
| gtctcccat | gcgagagtag | ggaactgcc | ggcatcaa | aaaacgaaag | gctcagtcga | 3780 |
| aagactgggc | ctttcgtttt | atctgttggt | tgtcggtgaa | cgctctcctg | agtaggacaa | 3840 |
| atccgccggg | agcggatttg | aacgttgcca | agcaacggcc | cggagggtgg | cgggcaggac | 3900 |
| gccccccata | aactgccagg | catcaaatta | agcagaaggc | catcctgacg | gatggccttt | 3960 |
| ttgcgtttct | acaaactcct | tttgtttatt | tttctaaata | cattcaaata | tgtatccgct | 4020 |
| catgagacaa | taaccctgat | aatgcttca | ataatattga | aaaaggaaga | gtatgagtat | 4080 |
| tcaacatttc | cgtgtcgccc | ttattccctt | ttttgcggca | ttttgccttc | ctgtttttgc | 4140 |
| tcaccagaa | acgctggtga | aagtaaaaga | tgctgaagat | cagttgggtg | cacgagtggtg | 4200 |
| ttacatcgaa | ctggatctca | acagcggtaa | gaccttgag | agttttcgcc | ccgaagaacg | 4260 |
| ttttccaatg | atgagcactt | ttaaagttct | gctatgtggc | gcggtattat | cccgtgttga | 4320 |
| cgccgggcaa | gagcaactcg | gtcgccgcat | acactattct | cagaatgact | tggttgagta | 4380 |
| ctcaccagtc | acagaaaagc | atcttacgga | tggcatgaca | gtaagagaat | tatgcagtgc | 4440 |
| tgccataacc | atgagtgata | acactgcggc | caacttactt | ctgacaacga | tcggaggacc | 4500 |
| gaaggagcta | accgcttttt | tgcacaacat | gggggatcat | gtaactcgcc | ttgatcgttg | 4560 |
| ggaaccggag | ctgaatgaag | ccataccaaa | cgacgagcgt | gacaccacga | tgctgtagc | 4620 |
| aatggcaaca | acgttgcgca | aactattaac | tggcgaacta | cttactctag | cttcccggca | 4680 |
| acaattaata | gactggatgg | aggcggataa | agttgcagga | ccacttctgc | gctcggccct | 4740 |
| tccggctggc | tggtttattg | ctgataaatc | tggagccggg | gagcgtgggt | ctcgcggtat | 4800 |
| cattgcagca | ctggggccag | atggtaagcc | ctcccgatc | gtagttatct | acacgacggg | 4860 |
| gagtcaggca | actatggatg | aacgaaatag | acagatcgct | gagatagggtg | cctcactgat | 4920 |
| taagcattgg | taactgtcag | accaagttta | ctcatatata | ctttagattg | atttaaaaact | 4980 |
| tcatttttaa | tttaaaagga | tctaggtgaa | gacctttttt | gataatctca | tgacaaaaat | 5040 |
| cccttaacgt | gagttttcgt | tccactgagc | gtcagacccc | gtagaaaaga | tcaaaggatc | 5100 |
| ttcttgagat | cctttttttc | tgcgcgtaat | ctgctgcttg | caaacaaaaa | aaccaccgct | 5160 |
| accagcggtg | gtttgtttgc | cggatcaaga | gctaccaact | ctttttccga | aggtaactgg | 5220 |
| cttcagcaga | gcgagatac | caaatactgt | ccttctagt | tagccgtagt | taggccacca | 5280 |
| cttcaagaac | tctgtagcac | cgcctacata | cctcgctctg | ctaatacctgt | taccagtggc | 5340 |
| tgctgccagt | ggcgataagt | cgtgtcttac | cgggttggtg | tcaagacgat | agttaccgga | 5400 |
| taaggcgcag | cggtcgggct | gaacgggggg | ttcgtgcaca | cagcccagct | tggagcgaac | 5460 |
| gacctacacc | gaactgagat | acctacagcg | tgagctatga | gaaagcgcca | cgttccccga | 5520 |
| agggagaaaag | gcggacaggt | atccggtaag | cggcagggtc | ggaacaggag | agcgcacgag | 5580 |

```

ggagcttcca gggggaaaacg cctggtatct ttatagtcct gtcggggttc gccacctctg 5640
acttgagcgt cgatttttgt gatgctcgtc aggggggcgg agcctatgga aaaacgccag 5700
caacgcggcc tttttacggt tcctggcctt ttgctggcct tttgtcaca tgttctttcc 5760
tgcgttatcc cctgattctg tggataaccg tattaccgcc tttgagttag ctgataccgc 5820
tcgccgcagc cgaacgaccg agcgcagcga gtcagttagc gaggaagcgg aagagcgcct 5880
gatgcggtat tttctcctta cgcattctgt cggtatttca caccgcatat ggtgcactct 5940
cagtacaatc tgctctgatg ccgcatagtt aagccagtat aactccgct atcgctacgt 6000
gactgggtca tggctgcgcc ccgacacccg ccaacacccg ctgacgcgcc ctgacgggct 6060
tgtctgctcc cggcatccgc ttacagacaa gctgtgaccg tctccgggag ctgcatgtgt 6120
cagaggtttt caccgtcatc accgaaacgc gcgaggcagc tgcggtaaag ctcatcagcg 6180
tggtcgtgaa gcgattcaca gatgtctgcc tgttcatccg cgtccagctc gttgagtttc 6240
tccagaagcg ttaatgtctg gcttctgata aagcgggcca tgttaagggc ggttttttcc 6300
tgtttggtca cttgatgcct ccgtgtaagg ggaatttct gttcatgggg gtaatgatac 6360
cgatgaaacg agagaggatg ctcacgatac gggttactga tgatgaacat gcccggttac 6420
tggaacgttg tgagggtaaa caactggcgg tatggatgcg gcgggaccag agaaaaatca 6480
ctcagggtca atgccagcgc ttcgttaata cagatgtagg tgttccacag ggtagccagc 6540
agcatcctgc gatgcagatc cggaacataa tgggtgcagg cgctgacttc cgcgtttcca 6600
gactttacga aacacggaaa ccgaagacca ttcattgtgt tgctcaggct gcagacgttt 6660
tgcagcagca gtcgcttcac gtctgctcgc gtatcgggta ttcattctgc taaccagtaa 6720
ggcaaccccg ccagcctagc cgggtcctca acgacaggag cagatcatg cgcacccgtg 6780
gccaggaccc aacgctgccc gaaatt 6806

```

<210> 195

<211> 13

<212> PRT

<213> Artificial sequence

<220>

<223> Description of artificial sequence: synthetic peptide sequence

<220>

<221> MOD_RES

<222> (1)..(1)

<223> ACETYLATION (MCA)

<220>

<221> SITE

<222> (11)..(11)

<223> 2,4-dinitrophenyl group after the Lys at position 11

<400> 195

Ser Glu Val Asn Leu Asp Ala Glu Phe Arg Lys Arg Arg
1 5 10

<210> 196

<211> 12

<212> PRT

<213> Artificial sequence

<220>

<223> Description of artificial sequence: synthetic peptide sequence

<220>

<221> SITE

<222> (4)..(4)

<223> amino acid at position 4 has been derivatized with a statine

<400> 196

Ser Glu Val Asn Val Ala Glu Phe Arg Gly Gly Cys
1 5 10

<210> 197

<211> 10

<212> PRT

<213> synthetic peptide sequence

<220>

<221> SITE

<222> (4)..(4)

<223> amino acid at position 4 has been derivatized with a statine

<220>

<221> SITE

<222> (10)..(10)

<223> amino acid at position 10 has been derivatized with Bodipy FL

<400> 197

Ser Glu Val Asn Val Ala Glu Phe Arg Cys
1 5 10

<210> 198

<211> 2043

<212> DNA

<213> Mus musculus

<400> 198

```
atggccccag cgctgcactg gctcctgcta tgggtgggct cggaatgct gcctgccag 60
ggaacccatc tcggcatccg gctgcccctt cgcagcggcc tggcagggcc acccctgggc 120
ctgaggctgc cccgggagac tgacgaggaa tcggaggagc ctggccggag aggagcttt 180
gtggagatgg tggacaacct gaggggaaag tccggccagg gctactatgt ggagatgacc 240
gtaggcagcc cccacagac gctcaacatc ctggtggaca cgggcagtag taactttgca 300
gtgggggctg cccacaccc tttcctgcat cgctactacc agaggcagct gtccagcaca 360
tatcgagacc tccgaaaggg tgtgtatgtg ccctacaccc agggcaagtg ggagggggaa 420
ctgggcaccg acctggtgag catccctcat ggccccaacg tcaactgtgc tgccaacatt 480
gctgccatca ctgaatcgga caagttcttc atcaatggtt ccaactggga gggcatccta 540
gggctggcct atgctgagat tgccaggccc gacgactctt tggagccctt ctttgactcc 600
ctggtgaagc agaccacat tccaacatc tttccctgc agctctgtgg cgctggcttc 660
ccctcaacc agaccgaggc actggcctcg gtgggaggga gcatgatcat tgggtggtatc 720
gaccactcgc tatacacggg cagtctctgg tacacacca tccggcggga gtggtattat 780
gaagtgatca ttgtacgtgt ggaaatcaat ggtcaagatc tcaagatgga ctgcaaggag 840
tacaactacg acaagagcat tgtggacagt gggaccacca accttcgctt gcccaagaaa 900
gtatttgaag ctgccgtcaa gtccatcaag gcagcctcct cgacggagaa gttcccggat 960
ggcttttggc taggggagca gctggtgtgc tggcaagcag gcacgacccc ttggaacatt 1020
ttcccagtca ttccacttta cctcatgggt gaagtcacca atcagtcctt ccgcatcacc 1080
atccttcttc agcaatacct acggccggtg gaggacgtgg ccacgtcca agacgactgt 1140
```

tacaagttcg ctgtctcaca gtcattccacg ggcactgtta tgggagccgt catcatggaa 1200
 ggtttctatg tcgtcttcga tcgagcccg aagcgaattg gctttgctgt cagcgcttgc 1260
 catgtgcacg atgagttcag gacggcggca gtggaaggte cgtttgttac ggcagacatg 1320
 gaagactgtg gctacaacat tccccagaca gatgagtcaa cacttatgac catagcctat 1380
 gtcattggcgg ccatctgcgc cctcttcattg ttgccactct gcctcatggg atgtcagtgg 1440
 cgctgcctgc gttgcctgcg ccaccagcac gatgactttg ctgatgacat ctccctgctc 1500
 aagtaaggag gctcgtgggc agatgatgga gacgcccctg gaccacatct ggggtggttcc 1560
 ctttggtcac atgagttgga gctatggatg gtacctgtgg ccagagcacc tcaggaccct 1620
 caccaacctg ccaatgcttc tggcgtgaca gaacagagaa atcaggcaag ctggattaca 1680
 gggcttgacac ctgtaggaca caggagaggg aaggaagcag cgttctgggtg gcaggaatat 1740
 ccttaggcac cacaacttg agttggaaat tttgctgctt gaagcttcag ccctgaccct 1800
 ctgcccagca tccttttagag tctccaacct aaagtattct ttatgtcctt ccagaagtac 1860
 tggcgtcata ctgaggctac ccggcatgtg tccctgtggg accctggcag agaaagggcc 1920
 aatctcattc cctgctggcc aaagtcagca gaagaagggtg aagtttgcca gttgctttag 1980
 tgatagggac tgcagactca agcctacact ggtacaaaga ctgcgtcttg agataaacia 2040
 gaa 2043

<210> 199
 <211> 501
 <212> PRT
 <213> Mus musculus

<400> 199

Met Ala Pro Ala Leu His Trp Leu Leu Leu Trp Val Gly Ser Gly Met
 1 5 10 15
 Leu Pro Ala Gln Gly Thr His Leu Gly Ile Arg Leu Pro Leu Arg Ser
 20 25 30
 Gly Leu Ala Gly Pro Pro Leu Gly Leu Arg Leu Pro Arg Glu Thr Asp
 35 40 45
 Glu Glu Ser Glu Glu Pro Gly Arg Arg Gly Ser Phe Val Glu Met Val
 50 55 60
 Asp Asn Leu Arg Gly Lys Ser Gly Gln Gly Tyr Tyr Val Glu Met Thr
 65 70 75 80
 Val Gly Ser Pro Pro Gln Thr Leu Asn Ile Leu Val Asp Thr Gly Ser
 85 90 95
 Ser Asn Phe Ala Val Gly Ala Ala Pro His Pro Phe Leu His Arg Tyr
 100 105 110
 Tyr Gln Arg Gln Leu Ser Ser Thr Tyr Arg Asp Leu Arg Lys Gly Val
 115 120 125

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Tyr | Val | Pro | Tyr | Thr | Gln | Gly | Lys | Trp | Glu | Gly | Glu | Leu | Gly | Thr | Asp | | |
| 130 | | | | | | 135 | | | | | 140 | | | | | | |
| Leu | Val | Ser | Ile | Pro | His | Gly | Pro | Asn | Val | Thr | Val | Arg | Ala | Asn | Ile | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| Ala | Ala | Ile | Thr | Glu | Ser | Asp | Lys | Phe | Phe | Ile | Asn | Gly | Ser | Asn | Trp | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | |
| Glu | Gly | Ile | Leu | Gly | Leu | Ala | Tyr | Ala | Glu | Ile | Ala | Arg | Pro | Asp | Asp | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| Ser | Leu | Glu | Pro | Phe | Phe | Asp | Ser | Leu | Val | Lys | Gln | Thr | His | Ile | Pro | | |
| | 195 | | | | | | 200 | | | | | 205 | | | | | |
| Asn | Ile | Phe | Ser | Leu | Gln | Leu | Cys | Gly | Ala | Gly | Phe | Pro | Leu | Asn | Gln | | |
| 210 | | | | | | 215 | | | | | 220 | | | | | | |
| Thr | Glu | Ala | Leu | Ala | Ser | Val | Gly | Gly | Ser | Met | Ile | Ile | Gly | Gly | Ile | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Asp | His | Ser | Leu | Tyr | Thr | Gly | Ser | Leu | Trp | Tyr | Thr | Pro | Ile | Arg | Arg | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| Glu | Trp | Tyr | Tyr | Glu | Val | Ile | Ile | Val | Arg | Val | Glu | Ile | Asn | Gly | Gln | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | |
| Asp | Leu | Lys | Met | Asp | Cys | Lys | Glu | Tyr | Asn | Tyr | Asp | Lys | Ser | Ile | Val | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | |
| Asp | Ser | Gly | Thr | Thr | Asn | Leu | Arg | Leu | Pro | Lys | Lys | Val | Phe | Glu | Ala | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Ala | Val | Lys | Ser | Ile | Lys | Ala | Ala | Ser | Ser | Thr | Glu | Lys | Phe | Pro | Asp | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | |
| Gly | Phe | Trp | Leu | Gly | Glu | Gln | Leu | Val | Cys | Trp | Gln | Ala | Gly | Thr | Thr | | |
| | | | 325 | | | | | | 330 | | | | | 335 | | | |
| Pro | Trp | Asn | Ile | Phe | Pro | Val | Ile | Ser | Leu | Tyr | Leu | Met | Gly | Glu | Val | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | |
| Thr | Asn | Gln | Ser | Phe | Arg | Ile | Thr | Ile | Leu | Pro | Gln | Gln | Tyr | Leu | Arg | | |
| | 355 | | | | | | 360 | | | | | 365 | | | | | |
| Pro | Val | Glu | Asp | Val | Ala | Thr | Ser | Gln | Asp | Asp | Cys | Tyr | Lys | Phe | Ala | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | |
| Val | Ser | Gln | Ser | Ser | Thr | Gly | Thr | Val | Met | Gly | Ala | Val | Ile | Met | Glu | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| Gly | Phe | Tyr | Val | Val | Phe | Asp | Arg | Ala | Arg | Lys | Arg | Ile | Gly | Phe | Ala | | |
| | | | 405 | | | | | 410 | | | | | 415 | | | | |
| Val | Ser | Ala | Cys | His | Val | His | Asp | Glu | Phe | Arg | Thr | Ala | Ala | Val | Glu | | |
| | | | 420 | | | | | 425 | | | | | 430 | | | | |
| Gly | Pro | Phe | Val | Thr | Ala | Asp | Met | Glu | Asp | Cys | Gly | Tyr | Asn | Ile | Pro | | |
| | | | 435 | | | | 440 | | | | | 445 | | | | | |
| Gln | Thr | Asp | Glu | Ser | Thr | Leu | Met | Thr | Ile | Ala | Tyr | Val | Met | Ala | Ala | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | |

Ile Cys Ala Leu Phe Met Leu Pro Leu Cys Leu Met Val Cys Gln Trp
465 470 475 480

Arg Cys Leu Arg Cys Leu Arg His Gln His Asp Asp Phe Ala Asp Asp
485 490 495

Ile Ser Leu Leu Lys
500